

CLAIMS

1. (PREVIOUSLY PRESENTED) An isolated polynucleotide comprising a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence that encodes a polypeptide conferring fusarium resistance to a plant, or a full length complement of the nucleotide sequence, wherein the nucleotide sequence is selected from the sequence set forth in SEQ ID NO: 1 or 3;

(b) a nucleotide sequence that encodes a polypeptide conferring fusarium resistance to a plant and comprising the amino acid sequence set forth in SEQ ID NO: 2 or 4, or a full length complement of the nucleotide sequence; and

(c) a nucleotide sequence that encodes a polypeptide that confers fusarium resistance to a plant, or a full length complement of the nucleotide sequence, wherein the nucleotide sequence hybridizes to a full length complement of a nucleotide sequence selected from the group consisting of the sequence set forth in SEQ ID NO: 1 or 3 and a nucleotide sequence that encodes the amino acid sequence set forth in SEQ ID NO: 2 or 4, under high stringency conditions, wherein the conditions comprise hybridization at 65°C in 1% BSA, 1 mM EDTA, 0.5 M NaHPO₄ (pH 7.2), 7% SDS, and washing at 65°C in 0.2 X SSC, 0.1% SDS.

2. (ORIGINAL) A nucleic acid construct, comprising a polynucleotide according to claim 1 operably connected to a regulatory element, which is operable in the plant.

3. (ORIGINAL) A nucleic acid construct according to claim 2, wherein the construct is a vector.

4. (ORIGINAL) An isolated host cell containing a nucleic acid construct according to claim 2.

5. (ORIGINAL) A host cell according to claim 4, wherein the host cell is a plant cell.

6. (ORIGINAL) A host cell according to claim 5, wherein the plant cell has the nucleic acid construct incorporated into its nucleome.

7. (ORIGINAL) A host cell according to claim 5, wherein the plant cell has the nucleic acid construct stably incorporated into its genome.

8. (ORIGINAL) A plant containing a cell comprising a nucleic acid construct according to claim 2.

9. (ORIGINAL) A plant according to claim 8, wherein the plant cell has the nucleic acid construct stably incorporated into its genome.

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14. (PREVIOUSLY PRESENTED) A method for modulating disease resistance in a plant, the method comprising introducing a construct into the nucleome of the plant and regenerating a stably transformed plant, the construct comprising a regulatory element operably connected to a nucleotide sequence selected from the group consisting of: (a) a nucleotide sequence that encodes a polypeptide conferring fusarium resistance to a plant, wherein the nucleotide sequence is selected from the sequence set forth in SEQ ID NO:1 or 3; (b) a nucleotide sequence that encodes a polypeptide conferring fusarium resistance to a plant and comprising the amino acid sequence set forth in SEQ ID NO: 2 or 4; and (c) a nucleotide sequence that hybridizes to the full length complement of (a) or (b) under high stringency conditions, wherein the conditions comprise hybridization at 65°C in 1% BSA, 1 mM EDTA, 0.5 M NaHPO₄ (pH 7.2), 7% SDS, and washing at 65°C in 0.2 X SSC, 0.1% SDS.

15. (ORIGINAL) A method according to claim 14, wherein the construct is introduced into regenerable plant cells so as to yield transformed plant cells.

16. (ORIGINAL) A method according to claim 15, wherein the transformed plant cells are used for regenerating a differentiated plant.

17. (ORIGINAL) A method according to claim 15, wherein the regenerable cells are regenerable dicotyledonous plant cells.

18. (ORIGINAL) A method according to claim 15, wherein the regenerable cells are regenerable monocotyledonous plant cells.

19. (PREVIOUSLY PRESENTED) A method according to claim 15, wherein regenerable cells are regenerable graminaceous plant cells.

20. (ORIGINAL) A method according to claim 15, wherein regenerable cells are regenerable non-graminaceous monocotyledonous plant cells.

21. (ORIGINAL) A method according to claim 15, wherein regenerable cells are regenerable banana cells.

22. (PREVIOUSLY PRESENTED) A method according to claim 16, wherein the expression of the polynucleotide confers the differentiated transgenic plant with enhanced resistance to disease.

23. (ORIGINAL) A method according to claim 22, wherein disease is caused by a fungal pathogen.

24. (ORIGINAL) A method according to claim 22, wherein disease is caused by soil borne fungi.

25. (ORIGINAL) A method according to claim 22, wherein disease is caused by *Fusarium* species.

26. (ORIGINAL) A method according to claim 16, wherein the nucleic acid construct is transmitted through a complete cycle of the differentiated transgenic plant to its progeny so that it is expressed by the progeny plants.

27. (ORIGINAL) A method according to claim 26, wherein the progeny is selected from seed, plant parts, tissue, and progeny plants derived from the differentiated transgenic plant.

28. (PREVIOUSLY PRESENTED) A method of breeding a plant, the method comprising identifying a plant that is resistant to fusarium wilt by detecting expression in the plant of a polynucleotide; and transferring from the plant genetic material corresponding to the polynucleotide *via* crossing and backcrossing to another plant, wherein the polynucleotide comprises a nucleotide sequence that is selected from the group consisting of: (a) a nucleotide sequence that encodes a polypeptide conferring fusarium resistance to a plant, or a full length complement of the nucleotide sequence, wherein the nucleotide sequence is selected from the sequence set forth in SEQ ID NO: 1 or 3 (b) a nucleotide sequence that encodes a polypeptide conferring fusarium resistance to a plant and comprising the amino acid sequence set forth in SEQ ID NO: 2 or 4, or a full length complement of the nucleotide sequence; and (c) a nucleotide sequence that encodes a polypeptide that confers fusarium resistance to a plant, or a full length complement of the nucleotide sequence, wherein the nucleotide sequence hybridizes to a full length complement of a nucleotide sequence selected from the group consisting of the sequence set forth in SEQ ID NO: 1 or 3 and a nucleotide sequence that encodes the amino acid sequence set forth in SEQ ID NO: 2 or 4 under high stringency conditions, wherein the conditions comprise hybridization at 65°C in 1% BSA, 1 mM EDTA, 0.5 M NaHPO₄ (pH 7.2), 7% SDS, and washing at 65°C in 0.2 X SSC, 0.1% SDS.

29. (ORIGINAL) A method according to claim 28, wherein the other plant is susceptible to a pathogenic disease.

30. (ORIGINAL) A method according to claim 29, wherein the disease is caused by a fungal pathogen.

31. (ORIGINAL) A method according to claim 29, wherein the disease is caused by a *Fusarium* species.

32. (ORIGINAL) A method according to claim 28, wherein the genetic material comprises naturally-occurring DNA.

33. (ORIGINAL) A method according to claim 28, comprising: (1) sexually crossing a plant containing the genetic material with a plant from a pathogen susceptible taxon; (2) recovering reproductive material from the progeny of the cross; and (3) growing plants with enhanced resistance to the disease from the reproductive material.

34. (CANCELED)

35. (ORIGINAL) A method according to claim 33, further comprising repetitively: (a) backcrossing the disease resistant progeny with disease susceptible plants from the susceptible taxon; and (b) selecting for expression of a nucleic acid sequence corresponding to the polynucleotide or to marker gene associated with the polynucleotide among the progeny of the backcross, until the desired characteristics of the susceptible taxon are present in the progeny.

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47. (PREVIOUSLY PRESENTED) An isolated polynucleotide comprising a nucleotide sequence encoding an amino acid sequence selected from the group consisting of

(i) an amino acid sequence which confers fusarium resistance to a plant, wherein the amino acid sequence is selected from the sequence set forth in SEQ ID NO: 2 or 4;

(ii) an amino acid sequence which confers fusarium resistance to a plant and which is encoded by the nucleotide sequence set forth in SEQ ID NO: 1 or 3; and

(iii) an amino acid sequence which confers fusarium resistance to a plant and which is encoded by a nucleotide sequence that hybridizes under high stringency conditions to a full length complement of the sequence set forth in SEQ ID NO: 1 or 3, wherein the conditions comprise hybridization at 65°C in 1% BSA, 1 mM EDTA, 0.5 M NaHPO₄ (pH 7.2), 7% SDS, and washing at 65°C in 0.2 X SSC, 0.1% SDS.

48. (CANCELED)